

### **REMARKS**

This amendment is submitted with a request for a two month extension and appropriate fee in reply to the final Office Action dated March 31, 2006. Claims 13-16 and 18-32 currently stand rejected. Applicants respectfully note that biasing the transition properties was previously performed in response to slightly different stimuli in each of the independent claims. Applicants have amended independent claims 13 and 27 in order to create substantial agreement between each of the independent claims so that the claims will be in better form for consideration on appeal. In this regard, Applicants respectfully note that the amendment to independent claim 27 simply makes explicit that which was already implicit and therefore has been previously examined. Furthermore, the final Office Action expresses the rejection of independent claim 27 in terms of the currently recited language. Specifically, independent claim 27 previously recited that the biasing of the transition properties was performed in response to “the output of the estimator” and it is clear that the output of the estimator is “the estimate of the number of phonetic segments in the utterance”. Accordingly, the amendment to independent claim 27 does not create new issues since the scope of the claim was previously examined. Independent claim 13 has been amended to create substantial agreement with independent claims 27 and 29. Accordingly, the amendment to independent claim 13 does not create new issues since the subject matter of the amendment to independent claim 13 has been previously examined with respect to both independent claims 27 and 29. Therefore, Applicants respectfully request entry of the present amendment in order to place the application in better form for consideration on appeal in accordance with 37 CFR §1.116. No new matter has been added by the amendment.

In light of the amendment and the remarks presented below, Applicants respectfully request reconsideration and allowance of all now-pending claims of the present application.

### **Claim Rejections Under 35 U.S.C. §102(b)**

Claims 13, 14, 18, 21 and 25-29 stand rejected under 35 U.S.C. §102(b) as being anticipated by Russell et al. (paper on “Measure of local speaking-rate for automatic speech recognition” published May 13, 1999, hereinafter “Russell”).

Independent claim 29 currently recites, *inter alia*, biasing the transition probabilities in dependence of the number of phonetic segments in an utterance.

The final Office Action currently asserts that Russell inherently discloses the above recited feature at col. 1 of page 1 of Russell by virtue of the measurement of the rate of speaking by measuring phones-per-second. However, as admitted in the final Office Action, Russell measures the number of phones-per-second in a sentence. In other words, Russell discloses measuring the number of phones-per-second at a sentence level. Furthermore, as defined by Russell, the number of phones-per-second is “defined to be the number of non-silence phones in a sentence *s* divided by the non-silence duration of *s*”. Accordingly, Russell only takes into account the non-silence phones over the length of a sentence and is unconcerned with and unable to distinguish between individual words. Instead, Russell treats the sentence as one continuous sound in which individual words of the sentence are merged together.

To the contrary, the claimed invention is concerned with the problem of effective word recognition, as described generally in the introductory portion of the description. Applicants submit that it is clear from the description of the present application that the term “utterance” is discussed purely in the context of individual words. Specifically, as stated at page 13, paragraph 2 of the present application, “the number of phonemes in the *uttered word* is not known a priori before decoding” (emphasis added). Additionally, at page 14, paragraph 1, the description of the present application details “a system for setting the transition bias according to an estimate of the number of phonemes in the *uttered word*” (emphasis added). In fact, the present application never discusses the term “utterance” in the context of a sentence at any point.

The final Office Action states that utterance and sentence are synonymous. However, Applicants respectfully submit that, in light of the clear description of the present application, utterance and sentence are not synonymous in the context of the claimed invention. Since the method of Russell is unable to distinguish between individual words, Russell cannot be considered to teach or suggest estimating the number of phonetic segments in a particular utterance and using such estimate to bias the transition probabilities as claimed in independent claim 29. Instead, Russell discloses estimating the rate of phones over an entire sentence and therefore teaches away from independent claim 29.

Additionally, in the third and fourth lines of the paragraph following Fig. 3, Russell discloses determining a rate of speech based on estimating the duration of each phone and using the estimated duration of each phone to “adapt the self-transition probabilities throughout an utterance”. This aspect of Russell, therefore, also teaches away from the recited feature above in which transition probabilities are biased in dependence of the number of phonetic segments in the utterance. Instead, the transition probabilities of Russell are adapted throughout an utterance. Thus, the number of phonetic segments in the utterance is not taken into account when biasing the transition probabilities, in contrast to the claimed invention, in which the number of phonetic segments in a particular utterance is determined and then used in the particular utterance to retrospectively set the transition probabilities for the particular utterance.

In light of the arguments above, Applicants submit that Russell fails to teach or suggest biasing the transition probabilities in dependence of the number of phonetic segments in an utterance as recited in independent claim 29. Independent claims 13 and 27 include substantially similar subject matter to that of independent claim 29 with respect to biasing the transition probabilities and thus independent claims 13 and 27 are patentable for at least the reasons given above for independent claim 29. Claims 14, 18, 21, 25, 26 and 28 depend either directly or indirectly from corresponding ones of independent claims 13, 27 and 29, and thus include all the recitations of their corresponding independent claims. Therefore, dependent claims 14, 18, 21, 25, 26 and 28 are patentable for at least those reasons given above for independent claims 13, 27 and 29.

Accordingly, for all the reasons stated above, Applicants respectfully submit that the rejections of claims 13, 14, 18, 21 and 25-29 are overcome.

#### **Claim Rejections Under 35 USC §103**

Claims 15, 16, 19, 20, 22-24 and 30-32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Russell in view of various combinations of James et al. (“A Fast Lattice-Based Approach to Vocabulary Independent Wordspotting”, hereinafter “James”), Bergstrom, Gupta et al. (U.S. Patent No. 5,390,278, hereinafter “Gupta ‘278”), Gupta et al. (U.S. Patent No. 6,138,095, hereinafter “Gupta ‘095”), Ueyama et al. (U.S. Patent Application Publication No.

2001/0056346, hereinafter "Ueyama") and Schwartz et al. (U.S. Patent No. 5,621,859, hereinafter "Schwartz").

As stated above, Russell fails to teach or suggest biasing the transition probabilities in dependence on the number of phonetic segments in an utterance as claimed in independent claims 13, 27 and 29. James, Bergstrom, Gupta '278, Gupta '095, Ueyama and Schwartz also each fail to teach or suggest biasing the transition probabilities in dependence on an estimated number of phonetic segments in an utterance as claimed in independent claims 13, 27 and 29 and are not cited as such.

Since Russell, James, Bergstrom, Gupta '278, Gupta '095, Ueyama and Schwartz each fail to teach or suggest the aforementioned features of independent claims 13, 27 and 29, any combination of the cited references also fails to teach or suggest the subject matter of independent claims 13, 27 and 29. Thus, the cited references, taken either individually or in combination, do not anticipate, or render independent claims 13, 27 and 29 obvious. Claims 15, 16, 19, 20, 22-24 and 30-32 depend either directly or indirectly from a corresponding one of independent claims 13 and 29, and as such, include all the recitations of their corresponding independent claims. Dependent claims 15, 16, 19, 20, 22-24 and 30-32 are therefore patentably distinct from the cited references, individually or in combination, for at least the same reasons as given above for independent claims 13, 27 and 29.

Furthermore, although the dependent claims are at least patentable due to their dependency from independent claims which are believed to be patentably distinct over the cited references, some of the dependent claims recite still further subject matter that is believed to be patentably distinct over the cited references. For example, dependent claim 31 recites, *inter alia*, decoding a sequence of phonetic segment models without an application of transition bias and normalizing the resulting scores by a contribution proportional to the transition bias. Although Gupta '095 is cited as disclosing such feature, Applicants respectfully disagree. Gupta '095 discloses that recognition of an utterance can be rejected based on applying different thresholds for different utterance lengths, which the Office Action asserts is synonymous with the idea of setting different transition biases that are utterance length dependent. Applicants submit that rejection of an utterance based on a relationship between utterance lengths relative to a threshold

is entirely different than setting a different transition bias based on utterance length.

Accordingly, Applicants submit that the cited references fail to teach or suggest decoding a sequence of phonetic segment models without an application of transition bias and normalizing the resulting scores by a contribution proportional to the transition bias as claimed in dependent claim 31, thereby providing yet further evidence of the patentability of dependent claim 31.

Applicants respectfully note that the rejection of dependent claim 31 was traversed in Applicants' previous response; however, the final Office Action has failed to address this traversal. As stated in MPEP 707.07(f), "Where applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it." Accordingly, Applicants respectfully request an answer to the substance of the traversal of the rejection of dependent claim 31 in the next Office communication if such rejection is to be maintained, in accordance with the requirements of MPEP 707.07(f).

Accordingly, for all the reasons stated above, Applicants respectfully submit that the rejections of claims 15, 16, 19, 20, 22-24 and 30-32 under 35 U.S.C. §103(a) are overcome.

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### **CONCLUSION**

In view of the amended claims and the remarks presented above, it is respectfully submitted that all of the claims are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested in due course. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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